Before the
Federal Communications Commission
Washington, D.C. 20554

In the matter of	)	
GPS Networking, Inc.	)	
	)	
Petition for Rulemaking of the Part 15 Regulations	)	RM-11002
and Request for Waiver of the Part 2 Marketing Regulations	)	

ORDER

Adopted: June 30, 2005 **Released: July 6, 2005**

By the Commission:

I. INTRODUCTION

1. By this action, we are denying a Petition for Rulemaking and a Request for Waiver by GPS Networking, Inc. Specifically, GPS Networking requests that the Commission amend Section 15.211 of its regulations regarding tunnel radio systems, 47 C.F.R. § 15.211, or other regulations as deemed necessary, to permit GPS Networking to market a "re-radiation" kit for Global Positioning Satellite (GPS) signals. It also requests that the Commission grant a waiver of Section 2.803 of its marketing regulations, 47 C.F.R. § 2.803, to permit GPS Networking to market this equipment prior to obtaining a grant of equipment authorization while the rulemaking petition is being addressed.

2. A Public Notice soliciting comments on the petition was issued on June 25, 2004.[1] The U.S. GPS Industry Council (USGPSIC) and the National Telecommunications and Information Administration (NTIA) filed objections; no supporting comments were received. For the reasons discussed below, we conclude that the Petition for Rulemaking does not warrant consideration at this time and that a waiver of our marketing rules would not serve the public interest.

II. DISCUSSION

3. The re-radiation kit described in the GPS Networking petition and comments is a booster station that covers, at a minimum, the L1 (1575.42 MHz) and L2 (1227.6 MHz) GPS bands.[2] The equipment consists of a receive antenna, an amplifier to boost the signal level, and a radiating antenna. The receive antenna is located outside of a building and the radiating antenna is placed inside the building in order to facilitate indoor reception of the GPS signals. The petitioner states that its GPS booster station operates at an output power level of 0.0001 picowatts (-130 dBm) and that this is the power level that was specified in GPS Networking's experimental license. However, the measured output level from the radiating antenna, as performed by MET Laboratories, Inc., is 72.5 dBuV/m at a distance of one meter. This is equivalent to an EIRP of approximately -22.73 dBm.

4. GPS Networking requests that the Commission modify its rules so that its equipment may be classified as a tunnel radio system under Section 15.211 of our rules. Such a classification would

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[1] *See* Public Notice , Report No. 2662, released June 25, 2004, regarding RM-11002.

[2] The L2 GPS band is allocated exclusively to the Federal Government while the L1 GPS band is shared co-equally between the Federal Government and non-Government operations.

permit operation within a building at any power level provided the signal outside of the building does not exceed the general emission limits specified in 47 C.F.R. § 15.209 of our rules. GPS Networking states that it could add a "kill" switch to deactivate its booster station, or could employ "hooding" or shielding, when an outside opening is present.

5. In its opposition to GPS Networking's petition, NTIA notes that several federal agencies have shown interest in using GPS re-radiating devices for testing and experiments at facilities typically under the control of the organization operating the re-radiator, but that careful examination is needed to assess whether the wide variety of applications suggested by GPS Networking, which are not limited to controlled environments, may increase the potential of interference to GPS operations.[3] NTIA also notes that the petition contains conflicting and incomplete technical characteristics that make it impossible to assess whether the proposed re-radiation system is compatible with other GPS receiver applications, including those using GPS receivers designed to process very low receive signals and the Commission's enhanced-911 (E-911) requirements.[4] NTIA and USGPSIC concur that the re-radiator system has the potential to "spoof" a GPS signal and provide misleading location information, a situation that needs further study.[5] NTIA and USGPSIC object to authorizing GPS re-radiator systems as unlicensed devices under Part 15 in the restricted GPS bands (*see* paragraph 8, *infra*), and note in particular that the potential applications cited by GPS Networking are not similar to those allowed as tunnel radio systems under Section 15.211(a) of the Commission's rules.[6] USGPSIC suggests that GPS re-radiator systems be individually licensed with conditions appropriate to the installation to avoid interference to other GPS operations.

6. In reply comments, GPS Networking suggests that the Commission could limit sale of "re-radiation kits" to a limited pool of purchasers, create a certification process for installed kits, and create an on-line database listing kit purchasers and showing where stations are installed.

7. We conclude that GPS Networking's Petition for Rulemaking raises significant issues that need further study and thus does not warrant consideration at this time. At the outset, we do not find the operation of the GPS Networking booster station to be analogous to operation within a tunnel or mine as provided under Section 15.211(a). Section 15.211(a) permits the operation of a radio system that is contained solely within a tunnel, mine or other structure because the presence of naturally surrounding earth and/or water with limited openings to the outside provides attenuation to the radiated signal and thus reduces the potential for interference to authorized users of the spectrum. Any intentional or unintentional radiator external to the tunnel, mine or structure is subject to other applicable emission limits under Part 15. In addition, the total electromagnetic field from a tunnel radio system on any frequency outside the tunnel, mine or structure must meet other applicable emission limits under Part 15, with particular attention given to emissions from any opening in the structure to the outside environment. Unlike a tunnel radio system, the GPS Networking booster station is installed inside a building. A building is likely to provide significantly less attenuation to the emissions than surrounding earth or water and typically would have more openings to the outside environment, both of which further increase the likelihood of interference. Further, each tunnel radio system must be individually measured to demonstrate compliance with the standards. Because the use of tunnel radio systems is limited, this measurement requirement is feasible. However, a GPS booster system, as characterized by GPS Networking, is likely to be more widely marketed and deployed, raising questions about the feasibility of

[3] *See* Letter from Fredrick R. Wentland, NTIA to Edmond J. Thomas, FCC, January 31, 2005.

[4] USGPSIC also argues that the re-radiator system could interfere with accurate E-911 location reporting. *See* USGPSIC Reply Comments, July 26, 2004.

[5] In "spoofing," the signal generated by a GPS re-radiator could cause an active GPS receiver to lock onto a signal that appears legitimate but is not, and create signal position, velocity and timing errors.

[6] 47 C.F.R. § 15.211(a).

requiring separate on-site measurement and certification for every installation. Further, the discrepancies about the described and actual output power level of GPS Networking's booster stations raise additional questions.

8. We also are concerned that the requested changes to the regulations would permit unlicensed operation within the restricted bands within which intentional radiators, including booster stations, are prohibited from emitting any signals other than spurious emissions.[7] The GPS frequency bands are contained within the restricted bands. These restricted bands represent allocations for authorized radio services that concern safety-of-life applications or that, because of the nature of their operation, require the reception of extremely low signal levels. Again, particularly given the discrepancies about the output power level of the booster stations, we are concerned about the prospect of permitting widespread operation of these kits in the restricted bands.

9. We note that GPS Networking, in its reply comments, expresses its willingness to meet with the U.S. GPS Industry Council and other interested parties to determine mutually acceptable conditions governing the operation of GPS booster stations that could lead to additional filings with the Commission. Our denial of this petition does not preclude GPS Networking from filing new proposals for our future consideration, particularly those that may result from such meetings with the U.S. GPS Industry Council and other interested parties.

10. With regard to the request that we waive Section 2.803 of our rules to permit GPS Networking to market this equipment prior to equipment authorization while the rulemaking petition is being addressed, this request is moot because we decline to initiate a rulemaking proceeding at this time. Furthermore, we conclude that a waiver is not warranted in this case. It is a well established principle that the Commission will waive its rules if it determines, after careful consideration, that such a grant would serve the public interest without undermining the policy which the rule in question is intended to serve.[8] The purpose of the marketing rule is to ensure that radio devices meet applicable requirements and thus reduce the risk of interference. Because we believe that GPS booster stations pose an increased risk of interference and require further study, as discussed above, we conclude that granting this waiver request would undermine the purposes served by this rule and would not be in the public interest.

III. ORDERING CLAUSES

11. Based on the above, we conclude that the Petition for Rulemaking does not warrant consideration at this time and that a waiver of our marketing rules would not serve the public interest. Accordingly, IT IS ORDERED that the Petition for Rulemaking and the Request for Waiver filed by GPS Networking, Inc. ARE DENIED. This action is taken pursuant to Sections 4(i), 302, 303(e), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 302, 303(e), and 303(r).

12. For further information regarding this Order, contact John A. Reed, Office of Engineering and Technology, (202) 418-2455, john.reed@fcc.gov.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

[7] *See* 47 C.F.R. § 15.205.

[8] *See WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).